

Agilent 7820A GC and Agilent 5975E GC/MSD

# YOUR BEST VALUE FOR ROUTINE GC AND GC/MS ANALYSIS

The Measure of Confidence



**Agilent Technologies**

# Introducing the Agilent 7820A GC and 5975E GC/MSD

**Reliability and value, day after day.** If you're searching for a system that gives you maximum uptime, minimal maintenance, and reproducible results for *all* your standard GC analyses, then look no further than Agilent's GC and GC/MS instrument portfolio.

**The Agilent 7820A GC** is ideal for small- and medium-sized labs that are primarily concerned with routine analyses using standard GC methods. It was designed to provide a high return on your investment with features such as:

- Electronic pneumatics control and digital electronics
- Support for MSD ChemStation and a wide choice of Agilent OpenLAB GC software
- Fast access to sequence information, instrument conditions, and run status

**Agilent's 5975E GC/MSD** takes routine analyses to the next level, delivering consistent and dependable results. This bundled system includes the following components – saving you time and money:

- Pre-loaded MSD ChemStation software
- Split/splitless GC inlet
- Essential MS supplies, including a low-bleed column



Run after run, Agilent's 7820A GC delivers long-term performance and value you can count on.



The Agilent 5975E GC/MSD is built on a solid foundation of industry leadership, reliability, and performance.

To learn more about the Agilent GC and GC/MS portfolio, visit [www.agilent.com/chem/GC](http://www.agilent.com/chem/GC)

### Consistent, dependable results

The Agilent 7820A GC and 5975E GC/MSD both offer uncompromising GC performance for all your routine applications – including those that must comply with regulatory requirements. Agilent's proven electronic pneumatic control (EPC) and digital electronics ensure excellent reproducibility, as well as reliable accuracy and precision.

### Easy to learn and use – for all users

With their intuitive user interface, Agilent's 7820A GC and 5975E GC/MSD are both easy to operate, even for inexperienced or infrequent users. Because there are no gauges or manual gas knobs, errors are minimized. And with convenient, real-world design features and built-in self-diagnostics, the Agilent 7820A GC and 5975E GC/MSD are also easy to maintain.

### Lab-proven quality and long-life Agilent reliability

Why settle for "good enough," when you can invest in quality? With a heritage of more than 40 years of GC leadership, Agilent has earned a worldwide reputation for reliability and uptime under the most demanding operating conditions.

### A robust choice from a GC industry leader

The Agilent 7820A GC and 5975E GC/MSD are both designed to optimize routine performance while minimizing complexity. That means *any* lab can take advantage of Agilent's unmatched combination of reliable instrumentation, versatile software, and application-matched columns and supplies.

## Innovative technologies put speed, sensitivity, and powerful data mining tools within your lab's reach



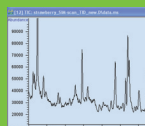
### Intuitive, user-friendly keypad

Promotes easy, stand-alone operation and diagnostics



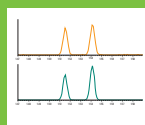
### Proprietary gold quartz quadrupole with 1050 u mass range

Delivers optimal resolution and sensitivity across the mass range; ensures low mass deviation for longer-lasting tuning and calibration



### High S/N Triple-Axis Detector

This next generation off-axis detector minimizes noise and maximizes signal for the lowest detection limits



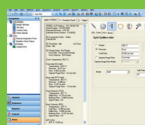
### Synchronous SIM/Scan mode

Allows you to selectively monitor for ions of interest at high sensitivity, while simultaneously acquiring spectra at scan rates up to 12,500 u/s



### GC/MS columns and supplies

High-performance Agilent J&W GC columns and certified supplies maximize your analytical results



### OpenLAB Software Platform

A wide choice of flexible and scalable OpenLAB GC software, based on previous ChemStation and EzChrom platform, enables you to generate reports that conform to strict regulatory requirements



### Agilent MSD productivity ChemStation

Makes it easy even for non-expert operators to take advantage of advanced capabilities

# Agilent 7820A GC

## Simplified operation and extra versatility help you get more done, every day

For maximum reliability and trouble-free operation under all conditions, the 7820A GC takes advantage of many of the engineering features and technology incorporated in Agilent's industry-leading GC portfolio.

For example, full electronic pneumatics control (EPC) – on all inlets and the detectors – ensures a better repeatability of retention times and peak areas. By setting gas flows via the software, you can now save all of the important parameters of your method.

Digital electronics keep your set points constant from run to run, and operator to operator. So you get better retention time repeatability, more consistent results, and less rework.

## Standard high precision inlets

- Split/splitless (SSL) for all large bore and all capillary columns
- Packed Purged Injection Port (PIIP) for packed columns

## Automatic valve control

For chemical and hydrocarbon processing applications, the 7820A GC system can automatically control up to two heated valves.

## High-sensitivity Agilent detectors for every sample type

**Flame Ionization Detector (FID)** – Wide dynamic response range enhances accuracy and minimizes sample prep requirements for samples that contain very high or very low compound concentrations.

**Nitrogen-Phosphorus Detectors (NPD)** – Offers superior sensitivity and selectivity for nitrogen- or phosphorus-containing compounds, such as pesticide residues in food and environmental samples.

**Thermal Conductivity Detector (TCD)** – Single-filament design provides lower noise and higher sensitivity for general purpose applications.

**Electron Capture Detector (micro-ECD)\*** – Combines unprecedented sensitivity and linearity with ruggedness and reliability – an ideal choice if your lab is analyzing halogenated organic compounds such as pesticides, PCBs and chlorinated solvents.

**Single Wavelength Flame Photometric Detector (FPD)** – High sensitivity detector specifically for sulphur or phosphorus-containing compounds in food, environmental, or petrochemical samples.

\*Not available in Japan.

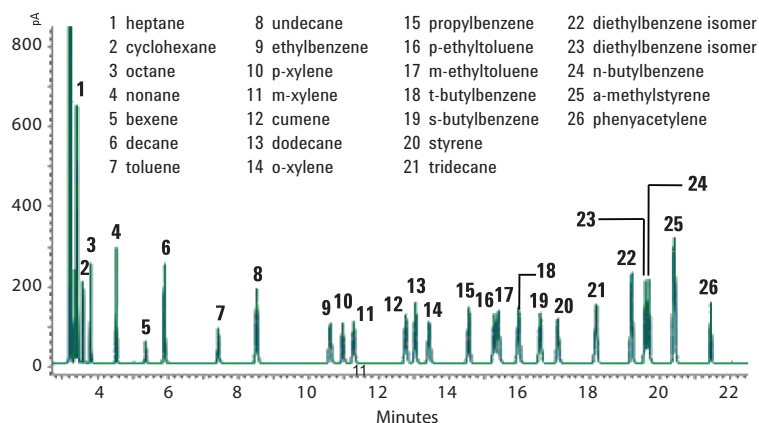
| Compound   | Retention Time (min.) |        | Peak Area (pA) |          |
|------------|-----------------------|--------|----------------|----------|
|            | 24 °C                 | 30 °C  | 24 °C          | 30 °C    |
| <b>C13</b> | 3.7843                | 3.7820 | 45.2143        | 44.5105  |
| <b>C14</b> | 4.4213                | 4.4190 | 45.5790        | 44.8429  |
| <b>C15</b> | 5.0369                | 5.0344 | 457.8670       | 449.3625 |
| <b>C16</b> | 5.6238                | 5.6211 | 456.6820       | 449.5554 |

*Retention time and area count changes are minimal – even as lab temperatures change throughout the day.*

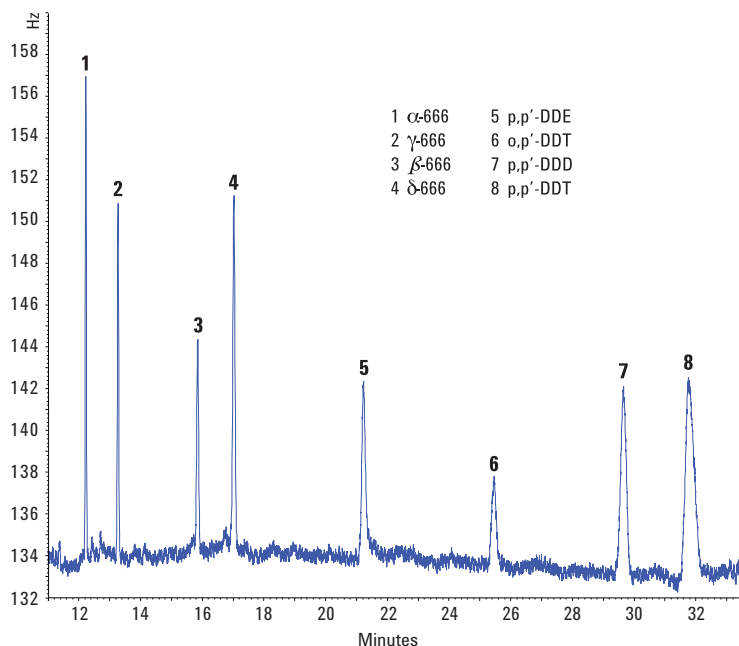
To learn more about the Agilent GC and GC/MS portfolio, visit [www.agilent.com/chem/GC](http://www.agilent.com/chem/GC)

## The uncompromising performance you expect from an industry leader

The 7820A GC offers performance you can depend on for all your routine analyses: outstanding sensitivity, reproducibility, accuracy, and precision. Exactly what you look for – and what you know you'll find – in every Agilent analytical solution.



Overlay of 10 runs demonstrates the 7820A system's outstanding repeatability.  
[5990-3548EN Analysis of Trace Hydrocarbon Impurities in Benzene by Agilent 7820A.]



Chromatogram of 500 ppt organochlorine pesticides run on Agilent 7820A GC with ECD.  
[5990-3473EN Analysis of Organochlorine Pesticides in Drinking Water by Agilent 7820 Gas Chromatograph/Micro Electron Capture Detector.]



### FID analysis for aromatic solvent.

An easy-to-use, single-column, method for aromatic solvent purity analysis meets the requirements of ten separate ASTM methods. EPC control and automatic injection ensures excellent repeatability for both retention time and peak area. In a single run, the wide dynamic response range of the flame ionization detector (FID) enables quantitative analysis of samples containing both very high and very low concentrations.

### Trace pesticides in drinking water.

The high sensitivity of the micro-ECD ensures confident detection, easily meeting stringent requirements of international regulatory agencies. The micro-ECD's reduced susceptibility to contamination allows analyses in a variety of complex matrices. In this example, using nitrogen in place of helium as the carrier gas dramatically reduces cost per sample.



# Agilent 5975E GC/MSD

## Everyday reliability and performance made simple

Whether you're performing routine environmental analysis or teaching analytical courses, Agilent's 5975E GC/MSD has the performance and quality you need to meet the challenge.

## Start your analysis in a fraction of the time

This leading-edge GC/MSD includes an intuitive user interface and built-in diagnostics. The system arrives ready to perform with a split/splitless inlet, splitless liner, and preconditioned Agilent J&W low-bleed GC column.

## Dependability and value for your day-to-day applications

Agilent's 5975E GC/MSD increases your uptime so you spend more time running your samples and less time maintaining the system. It also delivers all the consistent, dependable results, and robustness you expect from Agilent at a truly exceptional value.

### All-in-one versatility helps you get more done every day

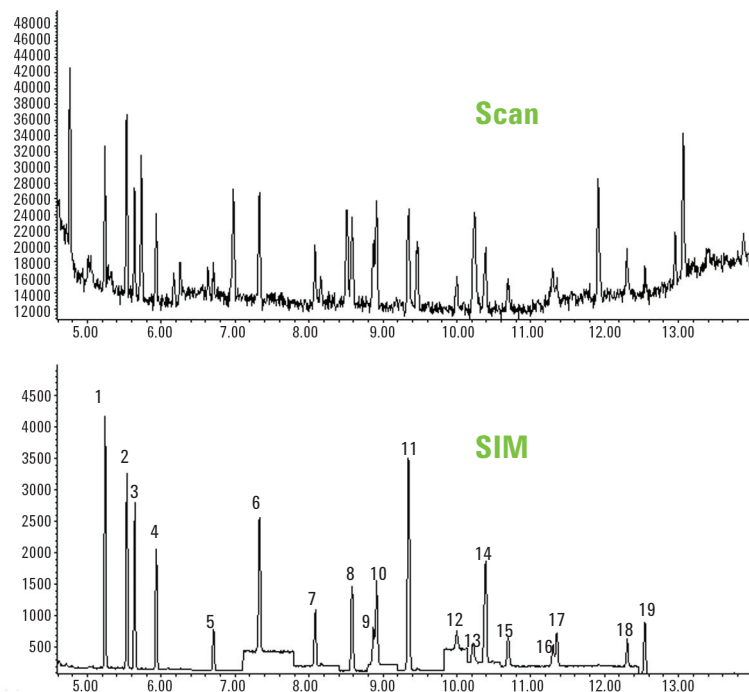
- **Bundled system** comes complete with GC, MSD, and pre-loaded software
- **Essential supplies included:** low-bleed septa, split/splitless liner, and conditioned Agilent J&W low-bleed GC column
- **Split/splitless inlet** for megabore and capillary columns
- **MSD ChemStation Software** includes easy to use graphical interface, preventive maintenance, and application specific features
- **Supports** optional 16-vial automatic liquid sampler or new 50-vial automatic liquid sampler



To learn more about the Agilent GC and GC/MS portfolio, visit [www.agilent.com/chem/GC](http://www.agilent.com/chem/GC)

## Repeatable results you come to expect from Agilent

**SIM/Scan Method.** With the 5975E GC/MSD it is possible to obtain SIM data quality and scan data in the same analysis with virtually no sacrifice in sensitivity in each mode. In this example, after creating the scan method, a SIM method was created using the ChemStation's AutoSIM tool.



Note that both the scan and SIM chromatograms were obtained in a single synchronous SIM/scan run.

| #  | Compounds              | Range(ppm) | Linearity(R <sup>2</sup> ) |
|----|------------------------|------------|----------------------------|
| 1  | $\alpha$ -Lindane      | 0.01-1     | 0.9999                     |
| 2  | $\beta$ -Lindane       | 0.01-1     | 1.0000                     |
| 3  | $\gamma$ -Lindane      | 0.01-1     | 1.0000                     |
| 4  | $\delta$ -Lindane      | 0.01-1     | 0.9999                     |
| 5  | Heptachlor             | 0.01-1     | 0.9998                     |
| 6  | Aldrin                 | 0.01-1     | 0.9997                     |
| 7  | Heptachlor exo-epoxide | 0.01-1     | 0.9997                     |
| 8  | trans-Chlordane        | 0.01-1     | 1.0000                     |
| 9  | Endosulfan-I           | 0.01-1     | 1.0000                     |
| 10 | cis-Chlordane          | 0.01-1     | 0.9999                     |
| 11 | p,p'-DDE               | 0.01-1     | 0.9993                     |
| 12 | Dieldrin               | 0.01-1     | 0.9999                     |
| 13 | Endosulfan-II          | 0.01-1     | 0.9998                     |
| 14 | Endrin aldehyde        | 0.01-1     | 0.9999                     |
| 15 | p,p'-DDD               | 0.01-1     | 0.9999                     |
| 16 | Endosulfan sulfate     | 0.01-1     | 1.0000                     |
| 17 | p,p'-DDT               | 0.01-1     | 1.0000                     |
| 18 | Endrin ketone          | 0.01-1     | 1.0000                     |
| 19 | Methoxychlor           | 0.01-1     | 0.9999                     |

**Outstanding reliability.** The 5975E GC/MSD provides reproducible results from one injection to the next and across a large range of concentrations.

# Flexible software choices

## Made to fit your application, workflow, and budget – perfectly

Choose between user-friendly OpenLAB CDS ChemStation Edition and OpenLAB CDS EZChrom Edition with multi-vendor control. Everything is designed to help you make the most of every run, and every workday.

## Agilent OpenLAB CDS EZChrom Compact: Your most economical choice for routine analysis and report

OpenLAB CDS EZChrom Compact gives you:

- Total control of a maximum of two instruments – including 7820A GC, 6820 GC, 490 MicroGC, and Agilent 1220 Infinity LC, from one PC.
- Quick access to your most common tasks
- Pre-defined reports and built-in templates for customized report layouts
- The ability to upgrade to OpenLAB CDS EZChrom when your needs change

OpenLAB CDS EZChrom Compact lets you view instrument status, current data, and run queue on a single screen.

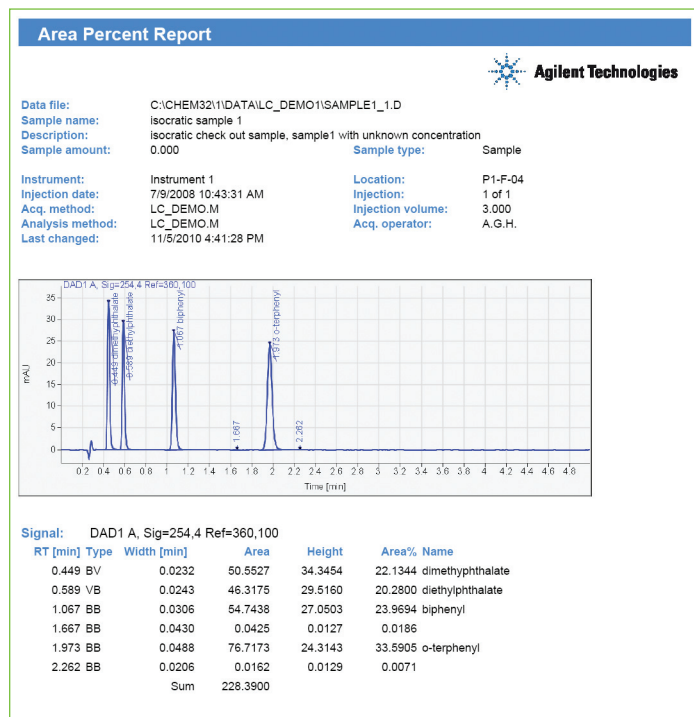
## Agilent OpenLAB CDS VL: Your choice for value

OpenLAB CDS VL gives you the choice between the ChemStation Edition and the EZChrom Edition. Both provide a fully functional OpenLAB CDS workstation for the control of your 7820A GC.

## Agilent OpenLAB CDS Full Version: Your comprehensive choice for instrument control

OpenLAB CDS ChemStation Edition provides full control of a whole range of Agilent instruments (LC, GC, CE, LC/MS, and CE/MS). OpenLAB CDS EZChrom Edition provides multi-vendor instrument control. In addition to the workstation configuration, networked and distributed systems are also available for remote monitoring and remote access of your instruments.

In contrast to OpenLAB CDS VL, OpenLAB CDS ChemStation and EZChrom Editions provide control of the Agilent Headspace Sampler(s). They also provide the option to integrate with OpenLAB ECM for central data storage, GLP, and compliance features.



To learn more about the Agilent GC and GC/MS portfolio, visit [www.agilent.com/chem/GC](http://www.agilent.com/chem/GC)

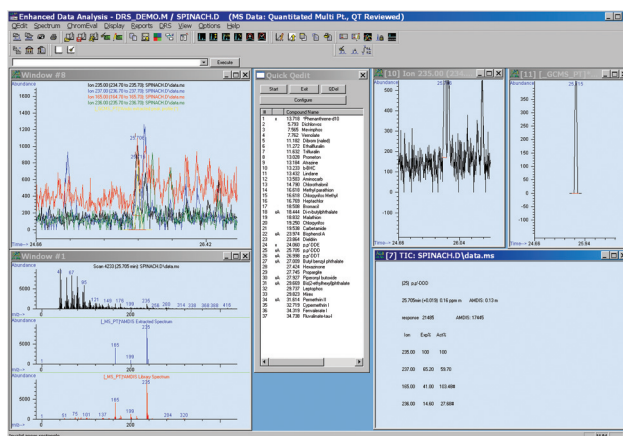
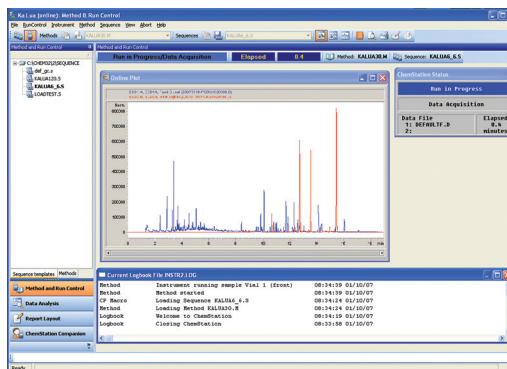


## Agilent MSD ChemStation:

Simplifies the analytical process from sample introduction to final reporting

Our MSD ChemStation is a full-featured, integrated GC/MS software application for all tasks associated with data acquisition, processing, and reporting. It gives you the *confidence* that comes with:

- Easy, intuitive operation for expert and nonexpert operators
- Convenient configuration as part of the 5975E GC/MSD system
- The ability to quickly review and edit results, update expected retention times and ion ratios, and tentatively identify and estimate the concentration of unknowns



The enhanced GC/MS data analysis reporting package.



## Automate your most tedious sample preparation steps with one standalone instrument

The Agilent 7696A Sample Prep WorkBench is a **simply better** way to...

- Automate repetitive manual sample preparation steps
- Save money on glassware, solvents, reagents, and solvent disposal: without sacrificing precision and reproducibility
- Reduce the need for rework due to analyst-to-analyst variability
- Increase productivity and lower your cost per sample
- Minimize exposure to hazardous chemicals

To learn more, visit [www.agilent.com/chem/workbench](http://www.agilent.com/chem/workbench)

# Agilent Injectors

## Boost your productivity and eliminate the uncertainty of manual injection

The 7693A Injector option automates your analyses of up to sixteen samples, while accommodating two solvent bottles and one waste bottle.

For increased capacity needs, the new 7650A Injector option expands sample throughput to 50, while accommodating four solvent bottles and four waste bottles.

For either model, the fast-injection technology minimizes needle discrimination and sample degradation, and allows fully unattended operation – from injection through final reporting.

Best of all, these self-aligning “plug and play” injectors are both portable and user friendly. They mount in seconds without tools and transfer quickly between GCs.



The 7650A Injector allows for the analysis of up to 50 samples.

## Best-in-class precision

| Carbon # | Split<br>Area % RSD | Splitless<br>Area % RSD |
|----------|---------------------|-------------------------|
| 10       | 0.20                | 0.26                    |
| 12       | 0.20                | 0.27                    |
| 14       | 0.20                | 0.27                    |
| 16       | 0.21                | 0.30                    |
| 18       | 0.23                | 0.28                    |
| 20       | 0.25                | 0.28                    |
| 22       | 0.28                | 0.28                    |
| 24       | 0.30                | 0.28                    |
| 32       | 0.39                | 0.30                    |
| 36       | 0.29                | 0.35                    |
| 40       | 0.34                | 0.27                    |
| 44       | 0.27                | 0.33                    |

Table refers to results of ten 1  $\mu$ L injections. The data is characteristic of 7650A and 7693A performance.

Whether you're detecting emerging contaminants in drinking water or testing drugs for purity, your results have to be correct, precise, and irrefutable. And the Agilent sample injectors help to ensure your best chromatography with advanced injection features:

- **Multiple wash solvent capability** for pre- and post-injection needle rinsing reduces sample carryover. Agilent's new premium syringes further help to eliminate the possibility of carryover.
- **Pre-injection sample pumps and pre-injection washes** further reduce the possibility of carryover.
- **Single stroke injection volume** as small as 0.01  $\mu$ L and as large as 250  $\mu$ L let you precisely match injections to the exact needs of your analyses.
- **New line of Agilent syringes** offers longer plunger lifetime, lower carryover and greater accuracy over a wider range of injection volumes.

To learn more about the Agilent GC and GC/MS portfolio, visit [www.agilent.com/chem/GC](http://www.agilent.com/chem/GC)

# Agilent Sample Prep, GC Columns, Supplies, and Services

## A lifetime of performance for your instrument... maximum productivity for your lab

As the world's GC leader, Agilent is uniquely positioned to help you meet your toughest analytical challenges with innovative sample prep products, columns, and supplies.

### Bond Elut SPE products: Accurate, reliable results with fewer repeated samples

- Selectively remove interferences from complex matrices
- Choose from traditional silica and advanced polymeric materials
- More than 40 phase functionalities in more than 30 formats

### Agilent Ultra Inert GC portfolio: Perform trace-level analysis with utmost confidence

Together, Agilent's Ultra Inert solutions help you achieve demanding parts-per-billion – or parts-per-trillion – detection levels.

- **Agilent J&W Ultra Inert GC columns** push industry standards for consistent column inertness and exceptionally low column bleed
- **Agilent Ultra Inert inlet liners** provide a robust, reproducible, and reliable inert flow path, even when containing wool

Agilent's GC portfolio also includes a complete line of GC supplies including gold seals, non-stick septa, and vespel/graphite ferrules to eliminate concerns about lost productivity caused by unexpected sequence interruption.

## Maximize your uptime with Agilent's customer-enabled service and support features

The 5975E GC/MSD system's integrated hardware and software design features provide a completely new level of operational simplicity. There's a guided system set-up so that you can get your new system up and running without having to schedule a visit by an Agilent service representative.

Of course, Agilent's world-class customer service engineers and certified support partners are available to provide a full range of Agilent services, including installation, familiarization, training, maintenance, contractual repair and regulatory compliance support.

### Enterprise Edition Compliance Services

Agilent's Enterprise Edition compliance service is designed to provide a fully integrated qualification approach that's robust enough for your entire enterprise. It's a single comprehensive qualification protocol built on a fully automated software program – the patent-pending Agilent Compliance Engine – that provides consistently configured electronic reports, records and signatures to help speed compliance reviews and minimize your regulatory risk.



*Agilent Bond Elut products simplify sample prep while selectively removing interferences and/or analytes. Agilent J&W columns deliver a leak-free, inert flow path that ensures the lowest bleed and best signal-to-noise performance for your Agilent 5975E GC/MSD system.*



## The Agilent Value Promise – 10 years of guaranteed value.

In addition to continually evolving products, we offer something else unique to the industry – our 10-year value guarantee. The Agilent Value Promise guarantees you at least 10 years of instrument use from your date of purchase, or we will credit you with the residual value of that system toward an upgraded model. Not only does Agilent ensure a safe purchase now, we help ensure your investment is as valuable to you in the long run.

## Agilent services let you focus on what you do best.

Should your Agilent instrument require service while covered by an Agilent service agreement, we guarantee repair or we will replace your instrument for free. No other manufacturer or service provider offers this level of commitment – keeping your laboratory running at maximum productivity.



### For more information

**Learn more:**

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Or contact your local Agilent Representative  
or Agilent Authorized Distributor

With the 2010 addition of Varian, Inc., Agilent now offers an even greater range of instrumentation and the most comprehensive columns and supplies portfolio in the market. Just as important are the best-in-class service and technical support teams, focused on finding solutions for our customers. Agilent is here to provide the technology – and *the Measure of Confidence* – you need to be successful.

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